

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application.

**Listing of Claims:**

**Claim 1 (Currently amended):** A method of reducing glycosaminoglycan (GAG) content in a glial scar of a mammal comprising administering to the glial scar of the mammal an agent that inhibits ~~one or more of the following:~~

~~the expression of primary proteoglycans;~~

~~the expression and/or activity of a chain initiation enzyme; and~~

~~the expression and/or activity of a chain elongation enzyme;~~

wherein the agent is selected from the group consisting of antisense oligonucleotides, ~~that bind a nucleic acid sequence encoding proteoglycans,~~ ribozymes, DNA enzymes, ~~and~~ RNAi constructs, ~~and small molecules;~~ the agent targeting a nucleic acid sequence encoding xylotransferase I (XT-I) or xylotransferase II (XT-II);

wherein the agent is administered intrathecally, topically, or locally to the glial scar.

**Claim 2 (Cancelled)**

**Claim 3 (Cancelled)**

**Claim 4 (Withdrawn):** The method of claim 1, wherein the chain elongation enzyme is selected from the group consisting of N-acetylgalactosaminyl transferase, glucuronosyltransferase, glucosaminyltransferase, galactosaminyltransferase, N-sulfotransferase, 6-sulfotransferase, 3-sulfotransferase, 1,4-glucosaminyltransferase, 1,4-galactosaminyltransferase, N-acetylglucosamine, and glucuronic acid.

**Claims 5-6 (Canceled)**

**Claim 7 (Withdrawn):** The method of claim 6, wherein the antisense oligonucleotide binds a nucleic acid as set forth in any one of SEQ ID No: 17, SEQ ID No: 19, SEQ ID No: 21, SEQ ID No: 23, SEQ ID No: 25, SEQ ID No: 27, SEQ ID No: 29, and SEQ ID No: 31.

**Claims 8-9 (Canceled)**

**Claim 10 (Withdrawn):** The method of claim 9, wherein the antisense oligonucleotide binds a nucleic acid as set forth in any one of SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 9, and SEQ ID NO: 11.

**Claim 11 (Withdrawn):** The method of claim 8, wherein the antisense oligonucleotides are selected from the group consisting of SEQ ID NO: 37 and SEQ ID NO: 38.

**Claim 12 (Previously presented):** The method of claim 1, the agent being a DNA enzyme.

**Claim 13 (Previously presented):** The method of claim 12, the DNA enzyme being set forth in SEQ ID NO: 33 or SEQ ID NO: 39.

**Claim 14 (Withdrawn):** The method of any one of claims 1 or 4, wherein expression and/or activity of the chain elongation enzyme is inhibited by administering an agent.

**Claim 15 (Withdrawn):** The method of claim 14, wherein the agent is selected from the group consisting of antagonists, antibodies, antisense oligonucleotides that bind a nucleic acid sequence encoding a chain initiation enzyme, ribozymes, DNA enzymes, RNAi constructs, and small molecules.

**Claim 16 (Withdrawn):** The method of claim 15, wherein the antisense oligonucleotide binds a nucleic acid as set forth in any one of SEQ ID No: 13 or SEQ ID No: 15.

**Claim 17 (Currently amended):** A method of promoting neuronal regeneration in a subject comprising administering an agent to a nervous system lesion to inhibit a GAG chain initiation enzyme, wherein the agent is selected from the group consisting of antisense oligonucleotides that bind a nucleic acid sequence

encoding proteoglycans, ribozymes, DNA enzymes, and RNAi constructs, and small molecules and the agent targeting a nucleic acid sequence encoding XT-I or XT-II;  
wherein the agent is administered intrathecally, topically, or locally to  
the nervous system lesion;

wherein the neuronal regeneration includes neurite extension into the nervous system lesion.

**Claims 18-20 (Canceled)**

**Claim 21 (Withdrawn):** The method of claim 20, wherein the antisense oligonucleotide binds a nucleic acid as set forth in any one of SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 9, and SEQ ID NO: 11.

**Claim 22 (Withdrawn):** The method of claim 20, wherein the antisense oligonucleotides are selected from the group consisting of SEQ ID NO: 37 and SEQ ID NO: 38.

**Claim 23 (Previously presented):** The method of claim 17, the agent being a DNA enzyme.

**Claim 24 (Previously presented):** The method of claim 23, the DNA enzyme being set forth in SEQ ID NO: 33 or SEQ ID NO: 39.

**Claim 25 (Original):** The method of claim 17, further comprising administering a growth factor or a neurotrophic factor.

**Claim 26 (Previously presented):** The method of claim 25, the neurotrophic factor being selected from the group consisting of nerve growth factor, brain-derived growth factor, neurotrophin 3, neurotrophin 4, neurotrophin 5, glial derived neurotrophic factor, and ciliary neurotrophic factor.

**Claim 27 (Previously presented):** The method of claim 25, the growth factor being basic fibroblast growth factor.

**Claim 28 (Previously presented):** The method of claim 26, further comprising administering a proteoglycan specific enzyme.

**Claim 29 (Currently amended):** A method for identifying and/or characterizing an agent, the method comprising screening a library of agents capable of one or more of the following:

- (i) inhibiting the expression of a primary proteoglycan;
- (ii) inhibiting the expression and/or activity of a chain initiation enzyme;
- (iii) inhibiting the expression and/or activity of a chain elongation enzyme; or

(iv) — inhibiting the expression and/or activity of a chain sulfation enzyme.

(iv) promoting inter-mixing of Schwann cells and astrocytes.

**Claims 30-34 (Cancelled)**

**Claim 35 (Withdrawn):** A pharmaceutical preparation comprising an agent identified by the method of claim 29 or 31 and a pharmaceutically acceptable carrier or excipient.

**Claim 36 (Cancelled)**

**Claim 37 (Withdrawn):** A kit comprising the pharmaceutical composition of claim 35 and instructions for the use of said pharmaceutical preparation in human or non-human patients.

**Claim 38 (Withdrawn):** Use of an agent in the manufacture of a medicament for decreasing expression and/or activity of a xylotransferase, wherein said agent is a DNA enzyme that binds to and inhibits expression and/or activity of a xylotransferase.

**Claim 39 (Withdrawn):** Use of an agent in the manufacture of a medicament for decreasing expression and/or activity of a xylotransferase, wherein

said agent is an antisense oligonucleotide that binds to and inhibits expression and/or activity of a xylotransferase.

**Claim 40 (Withdrawn):** A composition comprising an agent, wherein said agent inhibits the expression and/or activity of a xylotransferase, and wherein said agent is a DNA enzyme that binds to and inhibits expression and/or activity of a xylotransferase.

**Claim 41 (Withdrawn):** A composition comprising an agent, wherein said agent inhibits the expression and/or activity of a xylotransferase, and wherein said agent is an antisense oligonucleotide that binds to and inhibits expression and/or activity of a xylotransferase.

**Claim 42 (Withdrawn):** A composition comprising an agent, wherein said agent inhibits the expression and/or activity of a xylotransferase, and wherein said agent is an RNAi construct that binds to and inhibits the expression and/or activity of a xylotransferase.

**Claim 43 (Withdrawn):** The composition of any of claims 40-42, wherein the xylotransferase is XT-I.

**Claim 44 (Withdrawn):** The composition of any of claims 40-42, wherein the xylotransferase is XT-II.

**Claim 45 (Withdrawn):** The composition of any of claims 40-42, wherein the xylotransferase is XT-I and XT-II.

**Claim 46 (Withdrawn):** A DNA enzyme as set forth in SEQ ID No: 33 or SEQ ID NO: 39.

**Claim 47 (Withdrawn):** An antisense oligonucleotide as set forth in any one of SEQ ID No: 37 or SEQ ID No: 38.

**Claim 48 (Withdrawn):** A composition comprising a DNA enzyme, wherein said DNA enzyme binds to and inhibits the expression and/or activity of a xylotransferase, wherein said DNA enzyme is represented by the general formula:

$B_1-X-B_2$

wherein X corresponds to a DNA enzyme nucleotide sequence  $B_1$ , corresponds to a nucleotide sequence complementary to a nucleotide sequence of a xylotransferase, and  $B_2$  corresponds to a nucleotide sequence complementary to a nucleotide sequence of a xylotransferase, and wherein  $B_1$  and  $B_2$  are complementary to nucleotide sequences of a xylotransferase that are adjacent but separated by at least one nucleotide.

**Claim 49 (Withdrawn):** The composition of claim 48, wherein the xylotransferase is XT-I.

**Claim 50 (Withdrawn):** The composition of claim 48, wherein the xylotransferase is XT-II.

**Claim 51 (Withdrawn):** The composition of claim 48, wherein the xylotransferase is XT-I and XT-II.

**Claim 52 (Withdrawn):** The composition of claim 48, wherein said composition is a pharmaceutical composition formulated in a pharmaceutically acceptable carrier.

**Claim 53 (Withdrawn):** Use of an agent in the manufacture of a medicament for decreasing GAG content, wherein said agent is a DNA enzyme that binds to and inhibits expression and/or activity of a xylotransferase.

**Claim 54 (Withdrawn):** Use of an agent in the manufacture of a medicament for decreasing GAG content, wherein said agent is an antisense oligonucleotide that binds to and inhibits expression and/or activity of a xylotransferase.

**Claim 55 (Cancelled)**

**Claim 56 (New):** The method of claim 29, the primary proteoglycan being selected from the group consisting of neurocan, NG2, and phosphacan.